Modern Concepts of Cardiovascular Disease

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CARDIAC REHABILITATION FOR WORK*

Cardiacs Are Employable

Over the past 6½ years in the Cardiac Work Classification Unit of the Massachusetts Heart Association in Boston, we have evaluated 630 cardiacs of all types for employment. We have considered 420 of these to be employable, and of this group 293 (69 per cent of "employables") have been returned to their old jobs or have found new employment (to prior jobs, 121; to adjusted jobs, 37; to new jobs 135). Of these, 140 patients with 1 to 3 prior myocardial infarctions, often with residual angina, have been placed at work. This is in a state where workmen's compensation decisions have granted awards to cardiacs with notorious liberality and where obtaining new employment for these individuals has been deemed difficult.[1,2] Jobs obtained have ranged from light bench assembly work to strenuous physical labor. Under proper guidance, a patient with heart disease of any etiology, with a fair cardiac reserve, definite desire and motivation for work, some utilizable or transferable skill, and personal qualifications which would render him employable if he were not a cardiac, can generally be placed in the regular labor market.

Principles of Operation

The Work Classification Unit in Boston has operated, from the first, on a relatively simple clinical basis of patient evaluation of a type which might be followed in any cardiac clinic with skilled vocational and social service personnel. All possible details of past records are assembled; chest x-ray, electrocardiogram, urinalysis, hemoglobin, sedimentation rate, serology, complete history and physical examination are performed. If indicated, Master exercise tolerance tests are done. Social and vocational counselors conduct interviews. The case is discussed in group conference by the entire staff, conclusions are drawn and recommendations are made with definite plans for implementation.

Our philosophy has paralleled that of Leonard Goldwater when he stated: "How do physicians judge whether or not a cardiac patient can safely undertake a particular job? The answer is the same as it is to many questions in medicine—by common sense and clinical judgment. There is no mechanical device that will tell the physician what to advise."[3]

Background of Cardiac Rehabilitation

Prior to the final stage of rehabilitation, i.e., gainful employment, certain fundamental procedures are essential. The diagnosis must be clearly and completely established; this is important, not only for optimal treatment, but for prognosis, which has a most important bearing on placement. Full and optimum therapy, medical and surgical, must be established and followed. Perhaps nowhere do we see the importance of the early rehabilitation principles emphasized more clearly than in the Work Classification Unit. These are prompt instillation by the physician of optimistic confidence in the coronary patient, early setting of the goal of re-employment, reassurance of the family with avoidance of overprotection, and finally, specifically prescribed programs of progressive activity to maximum levels. Frequently, we see patients considering a return to work before they have been given the opportunity to build up or test their physical tolerance. It is our opinion that rehabilitation is a continuing program toward restoration of optimal medical, social and vocational status; the patient who departs from this with prolonged periods of idleness becomes a progressively poorer employment prospect.

Evaluation of Physical and Work Capacity

If we had only one method available for evaluation, this would be a highly detailed his-

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tory. What was the patient's actual work prior to his acute episode and how did he react to it? What were the circumstances of his acute attack? How has he convalesced? What residual cardiac symptoms does he have? Just how much work or exertion produce these? Has he performed exertion comparable to his prior work and with what results? How far and for how long has he walked? What are the effects of carrying and stair climbing? How do weather and temperature affect him? What have been his fears and emotional reactions and how have these influenced him? What has been his physical reaction to sexual activity? A composite picture may thus be drawn from the experience of recent weeks, revealing much of his physical tolerance and psychic state.

Next, actual examination and observation is in order, not only of the heart but of the whole man. Knowledge of associated defects may be important determinants. In addition to the usual examination, observation of the patient in action may be quite revealing, as in walking the hall or 1 or 2 flights of stairs, and possibly in weight carrying. What are his reactions to dressing, undressing and bending? What produces pain or dyspnea? If a Master test is to be performed, we believe that clinical observation of the patient at the time is of equal importance to the contour of the T waves.

In the course of the physician's interview and examination, other important factors will emerge which will be elaborated further in the social and vocational interviews. Is there genuine motivation and desire for work, or does someone else believe this desirable? What is the financial need? Is there a compensation claim or financial assistance influencing the situation? What is the emotional status? What is the educational and training background? What is the past work history? Is there evidence of stability? What actual or potential skills exist? What of hobbies? Is this man a potential asset to an employer apart from the cardiac status?

When all of these factors and others have been considered and discussed, we may be ready for classification and recommendations. Jobs and their demands, both physical and emotional, must be matched with estimated patient tolerance. The knowledge of comparative energy costs of activities, as outlined by Gordon and others, is often most helpful.[4] Many jobs in industry are less demanding than various chores of housework, so work around the house may serve as an excellent trial workshop. In some cases, especially those of a questionable nature, more detailed observation may first be required as in a transitional workshop before any recommendation may be made to industry. In other instances, especially where anxiety factors play an important part, gradually increasing work in a shop or rehabilitation center under observation may be of great value in establishing confidence and increasing work tolerance. In matching patients to jobs, it is important not only to recommend work which will not produce limiting or deleterious symptoms at the time, but to ascertain that cumulative fatigue does not result in subsequent nocturnal symptoms. In balancing a work program, the amount of energy expenditure by the patient when off the job must be considered and at times adjusted.

We have purposely carried on our project without more elaborate routine testing and believe that this is entirely practicable. It is strongly suggested by Ford and Hellerstein that the routine use of the Master Two-Step Test may be of great value in determining work capacity.[5] More elaborate functional testing has been recommended by Bruce and used by his group in Work Classification Unit testing.[6]

Recommendations

We must first make a decision as to whether the patient is or is not employable in the regular labor market, based on a combination of cardiac and extra-cardiac factors. It is our policy not to recommend a cardiac for an industrial position unless we believe he has a stable outlook for at least 2 to 3 years of employment and will prove of true value to the employer. A poorly made recommendation to industry may seriously hamper subsequent placements. If not fit for ordinary employment, can he do sheltered shop work? Recommendations must be made clearly to the patient, crystallizing his specific capacities for work, and, if indicated, directing him to those agencies which can best implement these. Specific recommendations may have to be made to old or new employers, or to vocational employment agencies. Just recommending light work or moderate work means little. Possibly an extreme in specificity of work prescription has been recommended by Hanman; while not always practical for cardiac patients, he proposes a goal of exactness in reporting work capacity.[7] Positive statement of abilities is preferable to listing of disabilities.

We attempt to state whether work must be sedentary or stationary. Can the individual move about on his feet—how far and for how long at a time? Can he climb—how much and how often? Can he do weight-lifting or carrying—how much and how often? Although consideration of these matters frequently precipitates debate, up to 25 pounds is easy for most cardiacs, 50 pounds intermittently is safe for many, and some can handle 100 pounds or more without difficulty. Body build, development and past conditioning are highly determinant factors. What are the effects of environment — should cold, extreme heat, dampness or dust be avoided? What consideration must be given to industrial hazards for the individual or others? We prefer a prescription in

narrative form to fit the circumstances, rather than a check list. Above all, these must be individualized in every case. Often the best procedure, where possible, is to examine an analysis of a specific job and decide if the given patient is qualified for it.

We have found it valuable to have our vocational counselor visit the plants concerned and make job analyses. The patient's own report may be at variance with the facts.

Specific Factors for Certain Types of Heart Disease

Congenital. Here determination rests almost entirely on functional capacity of the myocardium. What can the patient do without development of dyspnea, excessive fatigue or other important symptoms?

Rheumatic. In addition to the above, several specific factors must be considered. Is the patient subject to recurrent active rheumatism and how does this influence prescription of environmental factors, such as exposure? If this is a young person with rheumatic heart disease, is the type of work prescribed suitable for the present and also for the next 10 or more years, thus anticipating the natural course of the disease? Does the patient have significant aortic valve disease? Is he thereby subject to syncope and must industrial hazards be considered? If he has marked aortic stenosis or insufficiency with congestive failure or angina, his prognosis definitely is guarded and this must be seriously considered in recommending him to an employer. On the other hand, patients with very large hearts from mitral stenosis and insufficiency can often function quite well for many years at light work, even with mild failure, under careful medical supervision.

Hypertensive Heart Disease. Here the elements of the hypertensive effect on other systems must often be considered and the influences weighed. Many moderate hypertensives with stable pressures and only minimal asymptomatic cardiac enlargement appear capable of almost any type of work, often for years. On the other hand, we have a more conservative approach with those showing continued diastolic pressures of over 120, and those with rising pressures; here we prefer to avoid potential industrial hazards, heavy labor and work under pressure. When cardiac symptoms first arise or progress, work must be individualized to remain within the range of altered physical capacity. It must be constantly checked as to whether current optimum antihypertensive measures are being employed.

Coronary Artery Disease with Angina. This is a special and interesting group. We have observed numerous instances of patients with moderately severe angina who have improved markedly after getting away from home and back to a job; decrease in anxiety and family tension, along with added income, are in large part responsible. The mode of transportation to and from work is often a special consideration. Some may require sedentary or bench jobs, but others can do moderately active jobs if they learn how to adapt themselves appropriately. Patients with angina may be employable for 10 years or more and do well, but they admittedly pose a certain degree of risk.

Coronary Disease with Prior Myocardial Infarction. These patients comprise a most variable group. Some are totally asymptomatic and appear capable of almost any work. There are patients with 1, 2 and 3 prior attacks who return to jobs and still do well for several years. Others are limited by symptoms of angina or dyspnea. Strict individualization must be the rule, based on demonstrated reserve and tolerance. The electrocardiogram is a poor yardstick for measuring work capacity; many with extremely abnormal tracings, including intraventricular block and "aneurysmal patterns," will do well in an active life for years, while others with normal or near normal tracings may have little reserve. Also, there are patients with normal sized hearts who do poorly and others with enlarged hearts who fare well.

To drive or not to drive? This is a constant question. Very few are restricted from pleasure driving. We do permit light truck driving and commercial auto driving for those without severe angina or other important symptoms. We have 4 taxi drivers with prior coronary episodes known to their employers, who are now in good condition and working. On general principles, we have not sanctioned bus driving or heavy truck driving for patients with coronary heart disease or for any patients ever subject to syncope.

Preference of Work Recommendation

Old Job. Invariably this is our first choice, if at all possible. The individual knows his work, the short cuts and feels at home with it. This offers the best employment situation from every point of view. Cardiacs are often sent to us with the request of the physician that we find new and more suitable work for them. This may be theoretically good, but is impracticable. The anxieties and unfamiliarity of an easier new job may more than overbalance the apparent stresses of an old one. Further, the difficulty in finding a "new job" is often far greater than continuing with the old one.

Old Job with Adjustment. We have been pleasantly surprised at the cooperation of many employers and personnel managers in working out job modifications especially recommended for older patients. Our vocational counselors often assist with this planning.

New Job—Old Employer. The old employer often has a sense of obligation to a faithful

worker and may be able to offer new work if no suitable old work exists.

New Job—New Employer. This is the more difficult course for a cardiac, but one which we have often found possible with careful appraisal of the patient's assets and a detailed knowledge of the opportunities in the labor market.

Temporary Part-Time Work. When necessary, some employers will take on an employee, usually an old one, for part-time work or work on an increasing tolerance schedule. Many industries cannot do this.

Workshop for Trial or Hardening, as noted above.

Vocational Training or Retraining. While this is a favorite rehabilitation concept, we are not enthusiastic about it for older patients. For the young person with rheumatic or congenital heart disease in favorable condition, this is frequently the course of first choice, especially if he has little or no work skills or education. For the older cardiac, as one with a postmyocardial infarction and a questionable life expectancy, a year or two at school is often a waste. He will usually profit more by obtaining work immediately at something he can do. Too often we have seen vocational training courses carried on for a year or more without subsequent employment because of physical deterioration, or lack of interest or motivation. Brief, on-the-job training may be quite another matter and is often beneficial.

Preferred Methods of Job Finding

1. A majority of our patients, after proper job counseling, have then been able to obtain employment on their own through friends, through old contacts, or through their unions or advertisements. Instillation of confidence and initiative is often the only impetus required for this group.
2. Voluntary employment agencies and certain commercial employment services have proved of value in many instances.
3. State employment services, employment services of state vocational rehabilitation agencies, or the Veterans Administration have proved helpful in certain cases, but often the load of these agencies is such that cardiacs, as more difficult problems, filter to the bottom of the barrel and wait so long as to become discouraged.

Relief and Workmen's Compensation Cases

All too often we have observed families obtaining as much as $100 a week total from various relief agencies. If the patient does any work he loses all assistance. He just will not take a $50 a week job with deductions as a substitute. A graduated relief program is needed to counteract this evil.

In our experience, it is u
who has a pending work

claim either to take or seek employment. Settlements at the earliest date seem the most important cure for this. Rarely does the amount of a final settlement in itself serve to deter the needy cardiac from subsequent work.

Family Physician and the Problem

Work Classification Units are not available in all areas to help solve the problems posed. Yet it is our belief that if any well-informed physician can and will take the considerable time required to analyze the picture as we have suggested above, utilizing existing agencies (such as state divisions of vocational rehabilitation) as needed, he can go far toward achieving return of many cardiacs to appropriate work. In addition to time, this often requires optimistic confidence, vision and courage to proceed in the face of traditional overconservatism and possible misgivings of family and friends. The gratitude of the patient returned to a state of self-respect, confidence and independence will prove highly rewarding. The employer will often benefit from having an appreciative and highly conscientious employee who will do his best to justify the valued privilege of working. Society benefits from productivity in place of dependency.

As in all cases of heart disease, the patient should never be discharged from medical care. After employment, his follow-up must be continued periodically, with repeated reassurance, guidance, modification of therapy, and advice, as indicated. Clinical judgment, sound common sense and a devotion of time from first to last are key factors in rehabilitation for employment.

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